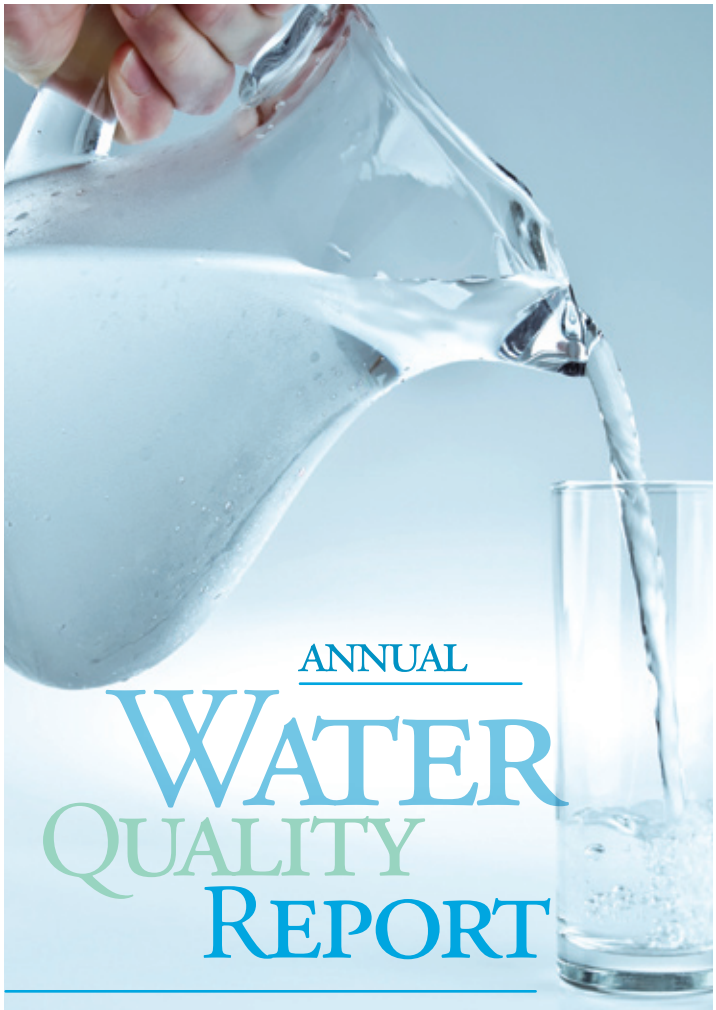

ANNUAL WATER QUALITY REPORT

Water testing performed in 2009

Blacksburg TOWN OF
a special place

PWS ID#: 1121052

Maintaining High Standards

Once again we are proud to present our annual water quality report. This report contains information about the source of your water, the treatment process, testing results for 2009, and how the results compare to standards set by regulatory agencies. The Town of Blacksburg and Blacksburg-Christiansburg-VPI Water Authority are committed to delivering the best quality drinking water and are happy to report that no violations of state and federal monitoring and reporting requirements occurred in 2009.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions, we are always available to assist you.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or www.epa.gov/safewater/hotline/.

Public Meetings

Water Authority meetings are held the third Wednesday of each month at 4:00 p.m., at the Water Treatment Plant, 3355 Peppers Ferry Road. For more information on your water system, visit www.h2o4u.org.

Where Does My Water Come From?

Blacksburg's water is taken from the New River and pumped to the Blacksburg-Christiansburg-VPI Water Authority treatment plant located on Route 114. The Water Treatment Facility utilizes a conventional process to treat surface water from the river. Water goes through several treatment processes, including coagulation, flocculation, chlorination, sedimentation, and filtration. The treated water must meet state and federal requirements administered by the Virginia Department of Health (VDH).

From there the treated water is transmitted through a series of pipes, tanks, and pump stations located along Routes 114 and 460 to the Town's water storage tanks, and then to your tap. Last year Blacksburg used an average of 3.1 million gallons of water a day.

Source Water Assessment

A source water assessment of the Blacksburg water system was conducted in 2002 by Draper Aden and Associates. The source was determined to be of high susceptibility to contamination, using criteria developed by the State of Virginia and its approved Source Water Assessment program. Details of this report may be obtained from the Blacksburg-Christiansburg-VPI Water Authority.

Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Town of Blacksburg is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at www.epa.gov/safewater/lead.

New Arsenic Regulation

Arsenic contamination of drinking water sources may result from either natural or human activities. Volcanic activity, erosion of rocks and minerals, and forest fires are natural sources that can release arsenic into the environment. Although about 90 percent of the arsenic used by industry is for wood preservative purposes, it is also used in paints, drugs, dyes, soaps, metals, and semiconductors. Agricultural applications, mining, and smelting also contribute to arsenic releases. Arsenic is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur (inorganic arsenic) or combined with carbon and hydrogen (organic arsenic). Organic forms are usually less harmful than inorganic forms.

Low levels of arsenic are naturally present in water – about 2 parts arsenic per billion parts of water (ppb). Thus, you normally take in small amounts of arsenic in the water you drink. Some areas of the country have unusually high natural levels of arsenic in rock, which can lead to unusually high levels of arsenic in water.

In January 2001, the U.S. EPA lowered the arsenic Maximum Contaminant Level (MCL) from 50 to 10 ppb in response to new and compelling research linking high arsenic levels in drinking water with certain forms of cancer. All water utilities were required to implement this new MCL in January 2006.

Removing arsenic from drinking water is a costly procedure but well worth the expenditure considering the health benefits. For a more complete discussion, visit the U.S. EPA's arsenic Web site at www.epa.gov/safewater/arsenic.html.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Lori Lester, Water Resources Manager, at (540) 961-4667 or Jerry Higgins, Director Blacksburg-Christiansburg-VPI Water Authority, at (540) 639-2575.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Water from surface sources is treated to make it drinkable, while ground water may or may not have any treatment. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Which household activity wastes the most water?

Most people would say the majority of water use comes from showering or washing dishes; however, toilet flushing is by far the largest single use of water in a home (accounting for 40% of total water use). Toilets use about 4-6 gallons per flush, so consider an ultra-low-flow (ULF) toilet, which requires only 1.5 gallons.

How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can only survive 1 week without water.

Backflow Prevention and Cross-Connection Control

As a citizen of the Town of Blacksburg, you expect safe, clean drinking water. When you turn on the tap, you assume that your water is free of contamination. Fortunately in America, we have access to clean drinking water. Cross-Connection Control and Backflow Prevention are two measures to ensure that the water flowing through our water infrastructure remains free from contaminants. Potable water is water that is safe for human consumption. You can do your part to help protect our precious water supply by understanding what backflow is and how to prevent it, how to irrigate safely, and how to protect your water if you have a boiler or a solar heating system.

What is a cross-connection? The answer is simple. A cross connection is any actual or potential connection between potable and non-potable water that may exist in plumbing systems or other situations. A cross-connection can pose a threat to our fresh water supply by introducing the possibility of contamination. Backflow can occur when there is a cross-connection present and the water supply pressure is less than the pressure in your private line. If there is a cross-connection, this pressure difference leads to non-potable water entering the fresh water supply for your home and possibly the public supply line. A backflow prevention device at the water service entrance in your home can reduce the chances of contaminating the public supply. If you remodel or have any plumbing work performed in your house, you should make sure you have a device installed. If you are unsure, then your plumber should be able to tell you. If you have any known cross-connections (such as a direct connection to a swimming pool), you should install a backflow device or a proper air gap at the connection.

Hose bibbs allow you to connect a hose outside for lawn watering, car washing, and gardening. Did you know that a garden hose can quickly become a hazardous or dangerous cross-connection? Tasks such as using weed killers and herbicides in conjunction with a hose can lead to contaminants being back siphoned into the fresh water supply if there is a drop in pressure. You can install a permanent atmospheric vacuum breaker on the connection to your hose bibb that will prevent backsiphonage into your home's fresh water supply.

Pressure inside a boiler has the potential to exceed water supply pressure. This pressure can cause backflow into the clean water supply. Some boilers are treated with anti-corrosion chemicals as well. This contaminated water can be forced back into your home's potable water system. An appropriate backflow prevention device can ensure that the water in your home is safe if you have a boiler.

Solar Heating Systems are a great way to heat your water and your home. Many of these systems have a glycol chemical loop. These systems also require an appropriate backflow prevention device.

The Town of Blacksburg takes pride in offering citizens safe drinking water. You can help by following these easy common sense practices. If your line does not have a backflow device, have one installed. When using weed killing chemicals, install an atmospheric vacuum breaker device on your hose bibb. Avoid submerging hoses in buckets with soap or chemicals. Make sure that all of your faucets are above the overflow level of the sink or bath tub. These tips will help you do your part in protecting our water supply from unsafe cross-connections and backflow. If you have any questions, please call the Water Resources Inspector at (540) 961-1887 or email at jhiggins@blacksburg.gov.

Testing For Cryptosporidium

Back in 1992, the Blacksburg-Christiansburg-VPI Water Authority observed that drinking water researchers and EPA were becoming concerned about *Cryptosporidium* (Crypto), a microscopic parasite present in most surface waters serving water supplies. Ingestion of Crypto may cause cryptosporidiosis, an abdominal infection. The most effective method for removal is filtration such as what is practiced at the Water Authority, although its removal is not 100 percent guaranteed. Disinfection, such as with chlorine, has been found to be ineffective against Crypto.

In 1994, the Water Authority began routine testing for *Cryptosporidium* in the New River. Many of the samples since then have shown no Crypto, while others have indicated the presence of Crypto in very small numbers.

As of 2008, under the EPA "Long Term 2 Enhanced Surface Water Treatment Rule," water suppliers are now required to collect at least 24 samples (monthly) over a two year period. The Water Authority has chosen to collect 48 samples over those two years. Furthermore, we are required to tell you about that monitoring and give you the results. During 2009, the Water Authority collected 24 official samples from the New River, and the average Crypto concentration was 0.028 oocysts per liter. While the monitoring indicates the presence of these organisms in our source water (before treatment), the current test methods do not allow analysts to determine if the organisms are dead or alive. Based on the *Cryptosporidium* monitoring results so far, the Water Authority anticipates having no problem meeting future EPA treatment requirements.

Sampling Results

Water at the treatment plant is tested at least 249 times a day, 7,757 times a month, and 93,602 times a year. The Blacksburg-Christiansburg-VPI Water Authority routinely monitors for 76 regulated, 48 unregulated, and many non-regulated contaminants in your drinking water, according to Federal and State regulations. The table below shows only those contaminants that were detected in the water during the monitoring period of January 1 through December 31, 2009.

MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

The state requires monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chlorine (ppm)	2009	[4]	[4]	1.81	1.00–2.58	No	Water additive used to control microbes
Combined Radium[1] (pCi/L)	2008	5	0	1.4	NA	No	Erosion of natural deposits
Combined Nitrate and Nitrite (ppm)	2009	10	10	0.52	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Haloacetic Acids [HAA] (ppb)	2009	60	NA	33	16–57[3]	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2009	5% of monthly samples are positive	0	2.5% (month of sampling: August)	NA	No	Naturally present in the environment
Total Organic Carbon (removal ratio)	2009	TT (In compliance if > or = 1.0)	NA	1.04	1.0–1.09	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2009	80	NA	35	18–64[3]	No	By-product of drinking water disinfection
Turbidity[2] (NTU)	2009	TT = 1 NTU (max)	NA	0.09	0.02–0.09	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2009	TT < or = 0.3 NTU (95% of the time)	NA	100%	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2008	1.3	1.3	0.096	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2008	15	0	2	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] Sample taken 1/10/2008.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

[3] We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water. The range values include results from the IDSE.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.